REMARKS

Claims 1-70 are pending in the subject application. In the present Office Action, claims 1-70 stand rejected under 35 U.S.C. § 103(a) as being anticipated by U.S. Patent No. 6,815,390 to Vaughan et al. ("Vaughan"). Applicants respectfully traverse the rejection of claims 1-70 as set forth herein.

Independent claims 1, 22, 45, and 58 have been amended herein. Specifically the contacting step of each independent claim has been amended to recite "contacting the fluorous compound and at least one chemical reactant in the non-fluorous medium under conditions that form at least one product " within the body of the claim. This amendment has been made to clarify that the contacting step occurs in a non-fluorous medium. Support for this amendment may be found throughout the specification and in the preamble of each of the claims as originally filed.

Vaughan

To establish a case for *prima facie* obviousness, three basic criteria must be met: a) there must be some suggestion or motivation to modify the reference or to combine the reference teachings; b) there must be a reasonable expectation of success; and c) the prior art reference(s) must teach or suggest all the claim limitations. MPEP 2143. Applicants submit that *prima facie* obviousness has not been established for at least the reasons that the cited prior art reference does not teach or suggest all the claim limitations and there is no suggestion or motivation to modify the reference. Further, it is submitted by Applicants that the cited reference teaches away from the claims of the subject application.

The claims of the subject application set forth a method of conducting a chemical reaction in a non-fluorous medium and that the contacting step is performed in a non-fluorous medium. As defined in the specification, a non-fluorous medium is "an organic or inorganic liquid medium, or any mixture thereof, or any liquid medium comprised solely of reactants and/or products ("solvent-free reaction"), or any supercritical fluids." (Paragraph [0021]). A non-fluorous medium does not contain a fluorous solvent. As recited in the specification, "[t]he present invention provides a

significant advance over prior art in that a fluorous solvent is no longer needed to recover the fluorous catalyst, reagent, or transformed reagent." (Paragraph [0009]). Indeed, unlike the prior art, a liquid-liquid fluorous biphasic system (i.e., a mixture of fluorous solvent and non-fluorous solvent) is no longer needed to conduct the reaction when using the processes of the subject application.

According to the Examiner, Vaughan teaches a catalyst system for fluorous biphasic catalysis process comprising functionalized plastic beads, monodisperse SiO_2 or SiO_2 flakes associated with the catalyst in the fluorous phase. Vaughan discloses a catalyst system for fluorous biphasic catalysis processes. (See, for example, Vaughan, lines 4-10 and claim 1). In Vaughan, "the chemistry to be performed in a thin film of liquid adhering to the surface of the beads or SiO_2 particles" and "[a]s a result, a vastly reduced volume of the fluorinated solvent . . . is required." (Vaughan, column 2, lines 57-63). While Vaughan reduces the amount of fluorinated solvent necessary in the fluorous liquid-liquid biphasic system, a fluorous phase is still necessary and fluorous solvent is still required to coat the surface of the polymer beads or SiO_2 particles. (See also, Vaughan, column 3, lines 20-24). Indeed, the Examiner acknowledges that Vaughan teaches "reactions can be carried out in the fluorous biphase system, the simplest version being a two-phase mixture consisting of a perfluorcarbon (PFC) and a non-fluorinated solvent. (Office Action, page 3).

Unlike Vaughan, the process of the subject application allows for conducting a chemical reaction in a non-fluorous medium using a fluorous compound (i.e., reactant) including the step "contacting the fluorous compound and at least one chemical reactant in the non-fluorous medium under conditions that form at least one product." The process of the subject application "is advantageous because it eliminates the need for liquid-liquid biphase systems" and "[t]here is no . . . fluorous solvent requirements." (Paragraph [0026], emphasis added). Unlike Vaughan, which requires fluorous solvents, the reactions of the subject application are conducted without fluorous solvents (i.e., in a non-fluorous medium). Thus, Vaughan does not disclose each and every element in the claims of the subject application. Further, Vaughan teaches away from the claimed invention, since Vaughan requires the use of a fluorous solvent. One having ordinary skill in the art would see no suggestion or motivation in Vaughan to

eliminate a required component of the Vaughan process. Therefore, *prima facie* obviousness has not been established.

Further, according to the MPEP, "the omission of an element and retention of its function is an indicia of unobviousness." (MPEP 2144.04(II)(B), see also, *In re Edge*, 359 F.2d 896, 149 USPQ 556 (CCPA, 1966) (emphasis in original)). The claims of the subject application omit the Vaughan elements of a fluorous solvent and the liquid-liquid biphase system, while retaining the function (i.e., conducting a chemical reaction using a fluorous reagent. Therefore, Applicants submit that the claimed processes are non-obvious over the disclosure of Vaughan.

Finally, according to the MPEP, "proceeding contrary to accepted wisdom in the art is evidence of nonobviousness." (MPEP 2145(X)(D)(3), see also, *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986)). As discussed in Vaughan, conventional wisdom for fluorous reactions requires a liquid-liquid biphase system of a fluorous solvent and a non-fluorous solvent. (See, Vaughan, column 1, line 4 to column 2, line 63). Contrary to the accepted liquid-liquid biphase systems of the prior art, the processes of the subject application are conducted entirely in a non-fluorous medium, such as a non-fluorous solvent, liquid medium comprised solely of reactants and/or products ("solvent-free reaction"), or supercritical fluids. Therefore, the processes of the subject application are nonobvious over Vaughan and the prior art showing liquid-liquid biphase systems for fluorous-type reactions.

Applicants have discovered a method for conducting a chemical reaction in a non-fluorous medium using a fluorous compound in the presence of a solid adsorbant containing a fluorous domain. The Vaughan reference does not teach or suggest conducting a fluorous-type reaction in the absence of a fluorous solvent (i.e., in a non-fluorous medium) and only discloses reactions in a liquid-liquid biphase system which requires a fluorous solvent. Further, there is no suggestion or motivation to modify Vaughan to eliminate the fluorous solvent (which Vaughan emphasizes as a "required" component). Finally, evidence of nonobviousness exists, including omission of an element (i.e., the fluorous solvent) and proceeding contrary to accepted wisdom in the art. Applicants submit that the claims of the subject application are nonobvious over

the Vaughan reference. Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

Applicants submit that claims 1-70 of the subject application recite novel and non-obvious methods of conducting a chemical reaction in a non-fluorous medium using a fluorous compound in the presence of a solid adsorbant containing a fluorous domain. In view of the Amendments and Remarks submitted herein, Applicants respectfully submit that all claims in the subject application are in condition for allowance. Accordingly, reconsideration of the rejection and allowance of all pending claims is earnestly solicited.

If the undersigned can be of assistance to the Examiner in addressing issues to advance the application to allowance, please contact the undersigned at the number set forth below.

Respectfully submitted,

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